[Name of Document] Claims

[Claim 1]

An information processing apparatus comprising:

a data storage block which store contents; and

a data processing block which transfers said contents to an external device,

characterized in that said data processing block acquires check-out log including transferred content IDs as the contents already transferred from the information processing apparatus to the connected external device,

said data processing block further compares the check-out log with the content IDs as the contents stored in said data storage block in order to determine non-transferred contents, and

the determined non-transferred contents are established as the contents to be transferred to said external device.

[Claim 2]

The information processing apparatus according to claim 1,

characterized in that said data processing block acquires information about albums including said non-transferred contents so that the contents held in the albums corresponding to the acquired album information may be established as the contents to be transferred to said external device.

[Claim 3]

The information processing apparatus according to claim 1,

characterized in that said data processing block causes displaying means to display information about albums including said non-transferred contents and, based on a selection input of albums to be transferred by a user in response to the displayed information, transfers the contents from the selected albums.

[Claim 4]

The information processing apparatus according to claim 1,

characterized in that said data processing block acquires information about albums having only said non-transferred contents so that the contents held in the albums corresponding to the acquired album information may be established as the contents to be transferred to said external device.

[Claim 5]

The information processing apparatus according to claim 1,

characterized in that said data processing block causes displaying means to display information about albums having only said non-transferred contents and, based on a selection input of albums to be transferred by a user in response to the displayed information, transfers the contents from the selected albums.

[Claim 6]

The information processing apparatus according to claim 1,

characterized in that said data processing block acquires said check-out log from the connected external device, and compares the acquired check-out log with the content IDs as the contents stored in said data storage block in order to determine non-transferred contents.

[Claim 7]

The information processing apparatus according to claim 1,

characterized in that said data processing block stores said check-out log into a memory of the information processing apparatus and, based on external device identification information acquired from the connected external device, extracts check-out log entries corresponding to the connected external device from the check-out log stored in said memory, and

said data processing block further compares the extracted check-out log with the content IDs as the contents stored in said data storage block in order to determine non-transferred contents.

[Claim 8]

An information processing method for transferring contents to an external device,

characterized in that said information processing method including the steps of

detecting the external device upon connection thereof,

acquiring check-out log including transferred content IDs as the contents already transferred from an information processing apparatus to said external device,

comparing said check-out log with the content IDs as the contents stored in a data storage block of the information processing apparatus in order to determine non-transferred contents, and

establishing the non-transferred contents thus determined as the contents to be transferred to said external device, before transferring said non-transferred contents.

[Claim 9]

The information processing method according to claim 8, characterized in that said information processing method further includes the step of acquiring information about albums having said non-transferred contents so that the contents held in the albums corresponding to the acquired album information may be established as the contents to be transferred to said external device.

[Claim 10]

The information processing method according to claim 8,

characterized in that said information processing method further includes the steps of

causing displaying means to display information about albums including said non-transferred contents, and

based on a selection input of albums to be transferred by a user in response to the displayed information, transferring the contents corresponding to the selected albums.

[Claim 11]

The information processing method according to claim 8,

characterized in that said information processing method further includes the step of acquiring information about albums having only said non-transferred contents so that the contents held in the albums corresponding to the acquired album information may be established as the contents to be transferred to said external device.

[Claim 12]

The information processing method according to claim 8,

characterized in that said information processing method further includes the steps of

causing displaying means to display information about albums having only said non-transferred contents, and

based on a selection input of albums to be transferred by a user in response to the displayed information, transferring the contents corresponding to the selected albums.

[Claim 13]

The information processing method according to claim 8,

characterized in that said information processing method acquires said check-out log from the connected external device, and

said information processing method compares the acquired check-out log with the content IDs as the contents stored in said data storage block in order to determine non-transferred contents.

[Claim 14]

The information processing method according to claim 8,

characterized in that said information processing method acquires external device identification information from the connected external device,

said information processing method extracts check-out log entries corresponding to the connected external device from the check-out log stored in a memory of the information processing apparatus, and

said information processing method compares the extracted check-out log with the content IDs as the contents stored in said data storage block in order to determine non-transferred contents.

[Claim 15]

A computer program for carrying out transferring contents to an external device,

characterized in that said computer program includes the steps of

detecting the external device upon connection thereof,

acquiring check-out log including transferred content IDs as the contents already transferred from an information processing apparatus to said external device,

comparing said check-out log with the content IDs as the contents stored in a data storage block of the information processing apparatus in order to determine non-transferred contents, and

establishing the non-transferred contents thus determined as the contents to be transferred to said external device before transferring.

[Name of Document] Specification

[Title of the Invention]

Information Processing Apparatus, Information Processing Method, and Computer Program

[Technical Field]

[0001]

The present invention relates to an information processing apparatus, an information processing method, and a computer program. More particularly, the invention relates to an information processing apparatus, an information processing method, and a computer program, in a processing configuration where music contents are stored in a storage section such as a hard disk and the contents selected from the stored data are transferred to a portable device (PD), an external media or the like, which automatically determine non-transferred contents and establish the determined non-transferred contents as the contents to be transferred before transferring.

[Background Art]

[0002]

Today, information processing apparatuses such as PCs and portable devices with mass storage capabilities including large-capacity hard disk or DVD drives have come into general use. A large number of content users place huge quantities of contents such as music data and image data into storing means for storage and management purposes. These kinds of data are, for example, compressed using the MP3, ATRAC or the like before being stored as digital data. The data may be encrypted as needed for management.

[0003]

Recently popularized forms of content use typically involve having music contents downloaded from network-connected music distribution servers such as EMD (Electronic Music DISTRIBUTION) servers onto recording media in each user's PC. The downloaded contents may be output (checked out) as needed to the user's portable device (PD) for content reproduction.

[0004]

There exist jukebox applications for managing and reproducing these music contents as well as for controlling their transfer to external devices such as a portable device (PD). The representative jukebox applications include SonicStage (trademark), SonicStage Simple Burner (trademark), MGIQLIP (trademark), Windows Media Player (trademark), Real Player (trademark), and iTunes (trademark). Each application has the ability to download EMD contents and to transfer song data stored in the hard disk (HD) of the PC to the connected device or media.

[0005]

Before any song data stored in the hard disk (HD) of the PC can be transferred to the portable device (PD) or other suitable equipment or media connected to the PC, it is necessary to select contents to be transferred from the songs stored in the hard disk (HD) of the PC.

[0006]

In recent years, for example the hard disks (HD) used as the data storing means typically for the PC have gained huge storage capacities. The similar trend toward greater recording capabilities has also been observed with the storing means for portable devices (PD) and the like. With such mass storage media in general use, it has become almost common practice today to transfer contents not on a song by song basis but as a large group of selected songs between devices or between equipment and media.

[0007]

Where such multiple songs are to be transferred to the portable device (PD) or other media which is connected as a destination for the transfer and includes songs transferred in the past, it is preferable to check whether any of the songs have already been transferred so that the duplicate transfer may be avoided. That check, however, can be a great burden when there is a large number of contents to be checked at the source or at the destination of the transfer.

[0008]

For example, when any one of the above-mentioned applications is used to transfer contents, the GUI (Graphic User Interface) of the application usually offers the ability to display a list of transferable songs. However, it is generally up to the user to verify whether the numerous songs included in the displayed list have already been transferred, one song at a time.

[0009]

Apple Computer's iTunes, one of the jukebox applications, has a function called Auto Sync that works with iPod, a portable device (PD) marketed by the same company. This function involves, when data of new songs are added from downloaded EMD contents or ripped CDs, comparing song data in the content database of the PC, i.e., on the hard disk (HD), with the song data in iPod as the portable device (PD). Following the comparison, any song data that is found on the hard disk (HD) of the PC but not in iPod is transferred so that the song data on both sides will be synchronized. Descriptions of iPod and the Auto Sync function are found in non-patent documents 1 and 2.

[0010]

Using that function makes it possible to transfer automatically the song data stored in the hard disk (HD) of the PC to iPod. However, the function can only work with devices such as iPod which have a storage capacity large enough to accommodate all songs held on the HD. That is, when transferring is conducted by this function, the quantity of the data to be transferred from the hard disk of the PC must not exceed the capacity of the media that will accommodate the transferred data.

[0011]

If the quantity of the data to be transferred from the hard disk of the PC exceeds the capacity of the destination media, then not all target data to be transferred can be accommodated by the media. In the end, a problem will occur that the user is required to select the contents to be transferred.

[Non-Patent Document 1]

http://www.apple.co.jp/ipod/

[Non-Patent Document 2]

http://www.apple.co.jp/ipod/autosync.html

[Disclosure of the Invention]

[Problem to be Solved by the Invention]

[0012]

The present invention has been made in view of the above circumstances and provides an information processing apparatus, an information processing method, and a computer program, in a processing configuration where the contents such as song data stored and managed in a information processing apparatus such as a PC are transferred to a portable device (PD), an external device and the like, which automatically determine non-transferred contents and establish the determined non-transferred contents as the contents to be transferred before transferring.

[Means for Solving the Problem]

[0013]

In a first aspect of the present invention, there is provided an information processing apparatus including: a data storage block which stores contents; and a data processing block which transfers the contents to an external device, characterized in that the data processing block acquires check-out log including transferred content IDs as the contents already transferred from the information processing apparatus to the connected external device, compares the check-out log with the content IDs as the contents stored in the data storage block in order to determine non-transferred contents, and establishes the non-transferred contents thus determined as the contents to be transferred to the external device.

[0014]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block acquires information about albums including the non-transferred contents so that the contents held in the albums corresponding to the acquired album information is established as the contents to be transferred to the external device.

[0015]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block causes displaying means to display information about albums including the non-transferred contents and, based on a selection input of albums to be transferred by a user in response to the displayed information, transfers the contents corresponding to the selected albums.

[0016]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block acquires information about albums having only the non-transferred contents so that the contents held in the albums corresponding to the acquired album information is established as the contents to be transferred to the external device.

[0017]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block causes displaying means to display information about albums having only the non-transferred contents and, based on a selection input of albums to be transferred by a user in response to the displayed information, transfers the contents corresponding to the selected albums.

[0018]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block acquires the check-out log from the connected external device, and compares the acquired check-out log with the content IDs as the contents stored in the data storage block in order to determine non-transferred contents.

[0019]

In addition, an embodiment of an information processing apparatus of the present invention is characterized in that the data processing block stores the check-out log into a memory of the information processing apparatus and, based on external device identification information acquired from the connected external device, extracts check-out log entries corresponding to the connected external device from the check-out log stored in the memory, the data processing block further comparing the extracted check-out log with the content IDs as the contents stored in the data storage block in order to determine non-transferred contents.

[0020]

According to a second aspect of the present invention, there is provided an information processing method for transferring contents to an external device, the information processing method including the steps of: detecting the external device upon connection thereof; acquiring check-out log including transferred content IDs as the contents already transferred from an information processing apparatus to the external device; comparing the check-out log with the content IDs as the contents stored in a data storage block of the information processing apparatus in order to determine non-transferred contents; and establishing the non-transferred contents thus determined as the contents to be transferred to the external device before transferring.

[0021]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method further includes the step of acquiring information about albums including the non-transferred contents so that the contents held in the albums corresponding to the acquired album information is established as the contents to be transferred to the external device.

[0022]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method further includes the steps of: causing displaying means to display information about albums including the non-transferred contents; and, based on a selection input of albums to be transferred by a user in response to the displayed information, transferring the contents corresponding to the selected albums.

[0023]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method further includes the step of acquiring information about albums having only the non-transferred contents so that the contents held in the albums corresponding to the acquired album information is established is the contents to be transferred to the external device.

[0024]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method further includes the steps of: causing displaying means to display information about albums having only the non-transferred contents; and, based on a selection input of albums to be transferred by a user in response to the displayed information, transferring the contents corresponding to the selected albums.

[0025]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method acquires the check-out log from the connected external device, and compares the acquired check-out log with the content IDs as the contents stored in the data storage block in order to determine non-transferred contents.

[0026]

In addition, an embodiment of an information processing method of the present invention is characterized in that the information processing method acquires external device identification information from the connected external device, extracts check-out log entries corresponding to the connected external device from the check-out log stored in a memory of the information processing apparatus, and then compares the extracted check-out log with the content IDs as the contents stored in the data storage block in order to determine non-transferred contents.

[0027]

According to a third aspect of the present invention, there is provided a computer program for carrying out transferring contents to an external device, characterized in that the computer program includes the steps of detecting the external device upon connection thereof, acquiring check-out log including transferred content IDs as the contents already transferred from an information processing apparatus to the external device, comparing the check-out log with the content IDs as the contents stored in a data storage block of the information processing apparatus in order to determine non-transferred contents, and establishing the non-transferred contents thus determined as the contents to be transferred to the external device before transferring.

[0028]

Incidentally, the computer program according to the present invention can be offered in an appropriate computer-readable format on suitable media for use with a computer system capable of executing diverse program codes, the media including recording media such as CDs, FDs and MOs, as well as communication media such as networks. By supplying such a program in a computer-readable format, the computer system implements the processes corresponding to the program.

[0029]

Other objects, features and advantages of the present invention will become apparent in the following more-detailed descriptions based on embodiments later described and appended drawings. In this specification, a system indicates a logical collective configuration of a plurality of component devices. Each of the devices may or may not be housed in a single enclosure.

[Effects of the Invention]

[0030]

According to a configuration of the present invention, when the contents stored in and managed by an information processing apparatus are to be transferred to an external device, a check-out log including content IDs is acquired as the contents already transferred to the external device. The transferred content IDs in the check-out log are compared with the content IDs which are acquired from a song management information storage section in the information processing apparatus and are stored in the apparatus, whereby non-transferred songs are selected and transferred to the external device. Therefore, it eliminates the need for the user to check already transferred contents and to select the contents, thus making the transfer of contents more efficient.

[0031]

Also according to a configuration of the present invention, even when an automatic transfer setting is in place, the user is still presented through GUI with either a list of albums including non-transferred songs or a list of albums having only non-transferred songs so that the user may select albums to be transferred. Thus, the user's chores are reduced by the automatic selection of non-transferred songs, and the user's requirements are taken into account in transferring the contents.

[Best Mode for Carrying Out the Invention]

[0032]

Fig. 1 is a schematic view showing how an information processing apparatus embodying the present invention is typically configured. The information processing apparatus according to the present invention stores contents such as song data in storing means such as a hard disk drive. The stored contents are transferred to an external device such as a portable device (PD) or to media such as a flash memory.

[0033]

The information processing apparatus 100 is, for example, formed by a personal computer and has a data storage block 120 retaining music data and management information. The information processing apparatus 100 is connected to a network made up of a local area network, the Internet or the like, and is configured so as to be capable of downloading of data.

[0034]

The information processing apparatus 100 records to the data storage block 120 the music contents downloaded from content servers 151 and 152 such as EMD (Electronic Music Distribution) servers connected to the network or the music contents read from information recording media such as CDs (Compact Discs). These kinds of data are recorded after being coded using the MP3, ATRAC3 or other suitable standard or after being encrypted as needed.

[0035]

In response to requests from the information processing apparatus 100, the content servers 151 and 152 send the following through the network: music data constituting contents; attribute information such as album names, artist names, names of the songs in the albums, and playing time information; license information about the use of the contents; and additional information such as jacket images and lyrics. The information processing apparatus 100 stores the contents downloaded from the servers into the data storage block 120 together with the attribute information such as album names, artist names, and playing time information, license information about the use of the contents, and additional information corresponding to the downloaded contents.

[0036]

The license information, for example, includes a check-out count, i.e., a maximum number of portable devices (PD) allowed to use concurrently the content in question, as well as information specifying whether the content is authorized to be copied. In the description that follows, the portable devices (PD) refer generically to media such as players that reproduce contents and flash memories, and include any device with a storage block capable of accommodating contents and with a control unit that can control data transfer processes.

[0037]

The information processing apparatus 100 can output (check out) contents to a portable device 130 via a USB cable or the like together, for example, with management information and license information about the contents in question. The check-out process, however, is carried out under a management scheme based on the license information about the contents involved.

[0038]

The processing functions of the information processing apparatus according to the invention will now be explained with reference to Fig. 2. The information processing apparatus 100 has a data processing block 110 and the data storage block 120. The data processing block 110 includes a GUI section 111, a content management processing section 112, a content transfer processing section 113, a song management section 114, a file search section 115, a PC plug-in section 116, a PD plug-in section 117, a communication section 118, and a drive 119. The data storage block 120 includes a license information storage section 121, a song management information storage section 122, a song file storage section 123, and an additional information storage section 124. Each storage section accommodates corresponding information.

[0039]

The data processing block 110 is constituted by a CPU that processes data in keeping with computer programs and by a RAM, a ROM and other storage locations for retaining programs and parameters. A specific hardware structure will be described later. Details of the blocks shown in Fig. 2 are explained below.

[0040]

The GUI (Graphical User Interface) section 111 generates diverse data input/output screens and presents them on a display screen. The GUI section 111 functions as a data input section that responds to the user's operations on a keyboard and a mouse, and it also functions as a data output section that displays various kinds of information such as content information, content reproduction status information, content download information, and content transfer status information.

[0041]

When contents are to be transferred to the external device 130, the GUI section 111 displays a list of songs yet to be transferred to the device 130.

[0042]

During the process of transferring contents to the external device 130, the song management section 114 acquires check-out log information, i.e., recorded data about the contents transferred to and retained by the external device 130 through the PD plug-in section 117 and content transfer processing section 113. Preferably, check-out logs may be kept in a memory managed by the song management section 114 in conjunction with external device IDs. From the check-out logs stored in the memory of the information processing apparatus, each external device may acquire only the external device ID in order to extract the check-out log entries with regard to the connected device.

[0043]

More specifically, a check-out log including the content IDs (song IDs) of transferred contents is acquired from the external device 130. Alternatively, in accordance with the device ID acquired from the external device, the entries of the check-out log corresponding to the connected device are extracted from the check-out logs held in the memory of the information processing apparatus. The check-out log is compared with management information kept in the song management information storage section 122.

[0044]

The song management section 114 compares the content IDs (song IDs) of the contents (song data) placed in the data storage section 120 with the check-out log. Through the comparison, the song management section 114 extracts the content IDs (song IDs) of the contents not included in the check-out log, i.e., non-transferred songs, selects the albums that include the extracted non-transferred songs, and presents the user with information about these albums by way of the GUI section 111. Given the album information, the user may select desired contents to be transferred. Details of this process will be described later in more detail.

[0045]

The content management processing section 112 connects to the content servers 151 and 152 via the network on the basis of content designation information (e.g., URLs) input from the GUI section 111, and proceeds to acquire the designated contents. The acquired contents are forwarded through the song management section 114 to the song file storage section 123 of the data storage block 120 for storage. These steps constitute a content downloading process.

[0046]

The data constituting the contents proper are acquired together with attribute information about the contents in question such as song names, album names and artist names. These items of information are stored into the song management information storage section 122. License information serving as content access right information is also acquired as needed and stored into the license information storage section 121. Also, jacket images and lyrics are placed into the additional information storage section 124.

[0047]

The major functions of the content management processing section 112 include control over content downloading, content acquisition, and content reproduction.

[0048]

The content management processing section 112 also downloads designated contents from the content servers 151 and 152 through the communication section 118 in accordance with user-specified content designation information such as URL information. Furthermore, the content management processing section 112 inputs contents from an information recording medium 132 loaded in the drive 119. The contents thus downloaded or input are sent through the song management section 114 to the file storage section 122 in the data storage block 120 for storage.

[0049]

The content management processing section 112 also controls content reproduction. Given a reproduction request input through the GUI section 111, the content management processing section 112 outputs applicable content IDs as content designation information to the song management section 114. The song management section 114 acquires the file names corresponding to the content IDs, and supplies the content management processing section 112 with the song files (content files) acquired by the file search section 115 through file searches. The content management processing section 112 then controls reproduction of the acquired content files. With reproduction thus controlled, the contents are reproduced on the basis of their license information.

[0050]

The song management section 114 acquires from the data storage section 120 diverse kinds of data such as song management information, song files, license information, and additional information including jacket images and lyrics in response to the user's input via the GUI section 111. If the user makes a request through the GUI section 111 for acquisition of song information, for example, the song management section 114 acquires corresponding content information such as content IDs, album names, song names, and artist names from the song management information storage section 122 in the data storage block 120. The acquired content information is sent to the GUI section 111 which in turn displays the received information on the display screen.

[0051]

The user may select particular contents from the content information appearing on the display screen and input a request to reproduce the selected contents. In that case, the GUI section 111 supplies the content management processing section 112 with the song IDs corresponding to the contents requested to be reproduced and requests the reproduction of the contents.

Reproduction of the contents is executed through the PC plug-in section 116.

[0052]

Upon content reproduction, the song management section 114 acquires from the song management information storage section 122 the file names corresponding to the song IDs, and causes the file search section 115 to acquire files based on the file names, thereby acquiring the content files from the song file storage section 123. The song management section 114 outputs the song files thus acquired to the content management processing section 112. In turn, the content management processing section 112 outputs the acquired contents through the PC (Protected Content) plug-in section 116 to an external output device (e.g., speakers 131).

[0053]

During the process of content reproduction, the contents are decoded or decrypted in accordance with how they were coded or encrypted earlier, and then content reproduction takes place.

[0054]

The user may input through the GUI section 111 a content output (check-out) request or input (check-in) request to or from the external device 130 such as a portable device (PD). In such a case, the GUI section 111 supplies the content transfer processing section 113 with the song IDs corresponding to the contents requested to be transferred. Transfer of the contents is executed via the PD plug-in section 117.

[0055]

Upon receipt of the song IDs from the GUI section 111 requesting the transfer of the corresponding contents, the content transfer processing section 113 forwards the received song IDs to the song management section 114. The song management section 114 acquires from the song management information storage section 122 the file names corresponding to the song IDs, and causes the file search section 115 to acquire files based on the file names, thereby acquiring the content files from the song file storage section 123. The song management section 114 outputs the acquired song files to the content transfer processing section 113. In turn, the content transfer processing section 113 supplies the acquired contents to the PD plug-in section 117. The PD plug-in section 117 authenticates one another with the external device 130 such as the portable device before transferring the contents to the external device 130. Transfer of the contents takes place only if the mutual authentication is successfully concluded.

[0056]

In response to processing requests from the GUI section 111, content management processing section 112, or content transfer processing section 113, the song management section 114 acquires, updates or deletes data from the data storage block 120.

[0057]

For example, in accordance with the song IDs designated by the content management processing section 112 or by the content transfer processing section 113, the song management section 114 acquires the content file names corresponding to the song IDs from the content management information held in the song management information storage section 122. Based on the acquired file names, the song management section 114 outputs song file search instructions to the file search section 115. The file search section 115 to sends the song files acquired from the song file storage section 123 to the content management processing section 112 or to the content transfer processing section 113.

[0058]

Furthermore, the song management section 114 inputs to the data storage section 120 the contents downloaded by the content management processing section 112 from external servers as well as the contents input from the information recording media such as CDs.

[0059]

In the data storing process, content files in the data format of MP3, OMG, WMA or the like are generated and stored into the song file storage section 123. In addition to the data constituting the contents proper, attribute information about the contents such as song names, album names and artist names is stored into the song management information storage section 122. License information serving as content access right information is stored into the license information storage section 121, and additional information such as jacket images and lyrics is stored into the additional information storage section 124.

[0060]

On the basis of the user's processing request that is input through the GUI section 111, the song management section 114 records, updates, or deletes data stored in the song management information storage section 122 of the data storage block 120, that is, the data constituting content information such as album names, song names, artist names, and file names corresponding to the contents. The song management section 114 also reads the content information.

[0061]

Given data search requests from the GUI section 111, the song management section 114 searches for the requested data based on the information in the song management information storage section 122. The song management section 114 reads out the resulting content attribute information such as album names, artist names, song names, and song IDs from the song management information storage section 122 and sends the retrieved information to the GUI section 111.

[0062]

When contents are to be transferred to the external device 130, as described above, the song management section 114 acquires a check-out log as the recorded data of the contents which are already transferred and held in the external device 130 via the PD plug-in section 117 and content transfer processing section 113. The check-out log includes the content IDs (song IDs) of the contents already transferred. The song management section 114 then compares the acquired check-out log with the management information stored in the song management information storage section 122.

[0063]

By comparing the content IDs (song IDs) of the contents (song data) held in the data storage block 120 with the check-out log, the song management section 114 extracts the content IDs (song IDs) of the songs not included in the check-out log, i.e., non-transferred contents. The song management section 114 then selects the albums including the extracted non-transferred contents and presents the user with information about the selected albums through the GUI section 111. Given the album information, the user can select contents to be transferred. These steps will be described later in more detail.

[0064]

Upon request from the song management section 114, the file search section 115 searches the song file storage section 123 for the content storage files corresponding to the file names acquired from the song management information storage section 122 of the data storage block 120. The file search section 115 supplies the song management section 114 with the files retrieved from the song file storage section 123.

[0065]

The song management section 114 forwards the content storage files supplied from the file search section 115 to the content management processing section 112 or to the content transfer processing section 113.

[0066]

The data storage block 120 contains the license information storage section 121, song management information storage section 122, song file storage section 123, and additional information storage section 124.

[0067]

The song management information stored in the song management information storage section 122 will now be described with reference to Fig. 3. The song management information storage section 122 accommodates management information about the song files held in the song file storage section 123.

[0068]

Fig. 3 shows data structures of the song management information in the song management information storage section 122. The song management information placed in the song management information storage section 122 has management data in increments of songs and another management data in increments of albums.

[0069]

Fig. 3(a) indicates management data on a song by song basis. Fig. 3(b) depicts management data in units of albums, each album constituting a collection of a plurality of songs.

[0070]

The song-by-song management data shown in Fig. 3(a) includes data that corresponds to the song IDs identifying songs, to song names, and to song file names. These are all items of management information about the song files stored in the song file storage section 123. The song IDs are identification data unique to the song files that are stored in the song file storage section 123. The song file names are the file names of the song files that are stored in the song file storage section 123.

[0071]

The album-by-album management data shown in Fig. 3(b) includes data that corresponds to the album IDs identifying albums, to album names, and to the song IDs of the songs contained in the albums. These are all items of management information about the albums stored in the song file storage section 123. The album IDs are identification data unique to the albums that are stored in the song file storage section 123. The song IDs of the songs included in the albums correspond to the song IDs shown in Fig. 3(a).

[0072]

How albums, songs, and song files are related to one another will now be described with reference to Fig. 4. Each album is, for example, established as a collection of a plurality of songs performed by one artist. However, this definition is not limitative of the invention. Alternatively, an album may be constituted by a single song. Songs are established in child relation to albums. Each song is stored as a single data file in the song file storage section 123 shown in Fig. 2, the file being prepared in any one of diverse data formats (e.g., OMG, MP3, WMA).

[0073]

The items in the column "ID" in the management information tables of Fig. 3 about albums and songs are identifiers established corresponding to these albums and songs. Where songs are contained in an album, the album is established as a parent and the songs are considered children. As shown in Fig. 3(b), the management data in increments of albums includes album IDs as well as the song IDs of the songs included in each album. The correspondence between the stored IDs makes it possible to identify the album based on a given song or to find out the songs contained in a given album. For example, even when a search based on a song ID designation is carried out, by referring to the ID correspondence, the album ID corresponding to the song ID is extracted, and the album information is acquired.

[0074]

The information stored in the license information storage section 121 will now be described. The license information storage section 121 accommodates license information about files based on, say, the SDMI (Secure Digital Music Initiative) standard.

[0075]

What follows is a description, with reference to Fig. 5, of the information placed in the license information storage section 121. As shown in Fig. 5, license information 201 in the license information storage section 121 is established in association with the content files retained in the song file storage section 123. Each content file in the song file storage section 123 is made up of header information and music data as illustrated. The music data, as described above, is placed in the song file storage section 123 as data prepared in any one of diverse data formats (e.g., OMG, MP3, WMA).

[0076]

The license information 201 corresponds to the contents (i.e., songs) stored in the song file storage section 123. Illustratively, the license information 201 is constituted by content IDs, remaining reproduction counts, remaining allowable check-out counts, reproduction starting dates and times, reproduction ending dates and times, and the like.

[0077]

Upon receipt of a song ID from the song management section 114, the license information storage section 121 searches for a single set of license information corresponding to the song ID in question. The searched license information is sent to the song management section 114. Based on the license information thus supplied, content availability is controlled when the content is to be reproduced by the content management processing section 112 or to be transferred by the content transfer processing section 113.

[0078]

The song file storage section 123, as shown in Fig. 5, accommodates a large number of files in increments of songs in such various data formats as MP3, ATRAC3, OMG, and WMA. The same songs may each be stored in different data formats. Illustratively, a song B-1 provided as a child of an album B in Fig. 4 is shown stored in the song file storage section 123 as a data file B-1.MP3 in an MP3 format and a data file B-1.OMG in an OMG format.

[0079]

The additional information storage section 124 retains additional data corresponding to the contents such as image data representing jackets, lyrics, and recording dates and times.

[0080]

The process of transferring contents to the external device will now be described in detail. Fig. 6 is a flowchart explaining a content transfer sequence performed by the information processing apparatus of the present invention.

[0081]

The content transfer sequence is explained below by referring to the flowchart of Fig. 6.

[0082]

When the external device such as a portable device or a piece of media such as a flash memory is connected to the PD plug-in section 117 of the information processing apparatus 100, the apparatus 100 detects in step S101 the connection of the external device or media.

[0083]

When the external device or the piece of media is found connected, the content transfer processing section 113 acquires information about the connected external device or media through the PD plug-in section 117. The information about the connected external device is displayed by way of the GUI section 111.

[0084]

Typical information about the connected external device is displayed as indicated in Fig. 7. Fig. 7 shows a display example of information about the connected external device in a case where an ATRAC HDD is connected to the PD plug-in section 117. As illustrated in Fig. 7, the connected external device information includes HDD use status information 301, initialization information 302, and automatic transfer setting information 303. The HDD here acts as storing means of the external device.

[0085]

The automatic transfer setting information 303 is established to have two options: whether or not to let automatic transfer be carried out whenever the external device in question is connected; and whether or not to confirm each album before it is automatically transferred.

[0086]

The process of automatic transfer involves acquiring from the external device a check-out log including the content IDs (song IDs) of the contents already transferred to that device, comparing the check-out log with the management information held in the song management information storage section 122 to select contents not included in the check-out log, that is, non-transferred contents, and transferring selected contents to the external device. If the automatic transfer setting is not selected, manual transfer is brought into effect. This setting requires the user to select contents to be transferred.

[0087]

Even if the automatic transfer setting is being selected, it is possible to present the user with information about the albums containing the non-transferred songs through the GUI section 111 so that the user, on confirming the presented album information, may select songs to be transferred. This setting is selected or deselected by inserting or removing a check mark to or from the item indicating "The albums will be confirmed before getting transferred" in the automatic transfer setting information 303. Putting a check mark into the check box allows the user to confirm the presented album information and select the songs to be transferred. If the check mark is removed, then automatic transfer is set in place so that the contents not included in the check-out log of the external device (non-transferred songs) are selected and transferred to the external device. The setting information is associated with the device ID of each external device and are stored as the management information of the content transfer processing section 113 in the memory of the information processing apparatus 100. Alternatively, the setting information may be retained in each external device and may be acquired from there every time the device in question is connected.

[0088]

The description of the sequence for the content transfer process will now be resumed by referring again to the flowchart of Fig. 6. In a step S102, the content transfer processing section 113 of the information processing apparatus 100 determines whether or not automatic transfer is set for the external device connected to the PD plug-in section 117. If automatic transfer is not set in place, step S121 is reached for manual transfer or for some other processes.

[0089]

If manual transfer is set in place, for example, a transfer processing screen such as one shown in Fig. 8 is displayed through the GUI section 111. On the left side in the transfer processing screen appears My Library information 351 including information about songs and albums stored in the information processing apparatus 100; on the right is external device information 352 made up of information about the songs already transferred or currently being transferred to the external device.

[0090]

The user can select albums to be transferred illustratively from album information 354 displayed as part of the My Library information 351. The selected albums can be transferred by operating transfer control buttons 353 in the middle of the screen.

[0091]

Where automatic transfer is set in place, in a step S103, the information processing apparatus 100 acquires from the external device a check-out log including the content IDs (song IDs) of previously transferred contents.

[0092]

Fig. 9 shows typical data in the check-out log acquired from the external device. As shown in Fig. 9, the check-out log acquired from the external device includes the name of the external device being connected, a media ID, and transferred song log information (a list of the IDs of transferred songs). These items of information are held in a memory of the external device.

[0093]

The transferred song log information (transferred song ID list) is a list of the song IDs corresponding to the songs that were transferred in the past from the information processing apparatus 100.

[0094]

Alternatively, the check-out log may be kept in the memory of the information processing apparatus 100. Only the externally connected device ID may be acquired from the external device when it is connected. Based on the external device ID thus acquired, check-out log entries corresponding to the connected external device may be extracted from the check-out log in the memory. The check-out log thus extracted may then be compared with the content IDs as the stored content information in the data storage block, whereby non-transferred contents may be determined.

[0095]

The information processing apparatus acquires the check-out log such as the one shown in Fig. 9 or the device ID from the external device in the step S103. Check-out log entries corresponding to the connected external device are then extracted from the check-out log stored into the information processing apparatus. In a step S104, the information processing apparatus acquires from the song management information storage section 122 the content IDs (song IDs) of the songs stored in the song file storage section 123, and compares the acquired IDs with the content IDs (song IDs) recorded in the check-out log.

[0096]

In a step S105, the IDs of the songs yet to be transferred are extracted to the external device on the basis of the comparison performed in the step S104. That is, the song IDs, which are included in the content IDs (song IDs) of the songs stored in the song file storage section 123 but which are not included in the content IDs (song IDs) recorded in the check-out log, are extracted.

[0097]

In a step S106, information about the albums including the non-transferred songs is extracted based on the non-transferred song IDs extracted in the step S105. The album information is extracted by use of the album-by-album management data held in the song management information storage section 122 as explained above with reference to Fig. 3. As illustrated in Fig. 3, the management data in increments of albums has the song IDs established. On the basis of the album-by-album management data shown in Fig. 3(b), the albums that include the song IDs corresponding to the IDs extracted as the non-transferred song IDs are selected. The album information including the album names is extracted from the song management information storage section 122.

[0098]

In a step S107, the album information extracted in the step S106 from the song management information storage section 122 regarding the albums that include the non-transferred songs is presented through the GUI section 111. The presenting process is, in the information about the connected external device described above with reference to Fig. 7, effected only if the check box indicating "The albums will be confirmed before getting transferred" is selected as part of the automatic transfer setting information 303. If the check box is not selected, then the contents not included in the check-out log of the external device, i.e., non-selected songs, are selected and transferred to the external device automatically.

[0099]

The description hereunder is based on the assumption that the setting "The albums will be confirmed before getting transferred" is being selected. In the step S107, through the GUI section 111, the information of the albums including the non-transferred songs extracted from the song management information storage section 122 is presented.

[0100]

Fig. 10 shows typical information presented. As illustrated in Fig. 10, the presented information includes an album list 371 indicating the albums containing non-transferred songs. The user may select albums to be transferred from the album list 371 thus presented.

[0101]

If in a step S108 the user selectively inputs the desired albums through the GUI section 111, a step S109 is reached. In the step S109, song list information, in which the songs contained in the selected albums are set to be checked out, is created. Transfer in accordance with the song list information is then started.

[0102]

According to the configuration of the present invention, as described above, a check-out log including transferred content IDs is acquired as the content information already transferred from the information processing apparatus to the connected external device, compares the acquired check-out log with the stored content IDs as the stored content information in the data storage block so as to determine non-transferred contents, and establishes the non-transferred contents thus determined as the contents to be transferred to the external device. Thus, it is unnecessary for the user to verify and distinguish already transferred contents. This brings about an efficient content transfer process.

[0103]

In the procedure for transferring contents to the external device described above with reference to Fig. 6, the album information of the albums each including at least one song yet to be transferred to the external device was extracted. The album information was then presented to the user via GUI so that the contents were transferred to the external device based on the user's selection of the albums.

[0104]

What follows is a description of one example of the content transfer procedure, as a second embodiment, in which the albums containing only the songs yet to be transferred to the external device are extracted and information about the albums thus extracted is presented to the user for content transfer. The content transfer sequence according to the present embodiment will now be described by referring to the flowchart of Fig. 11.

[0105]

In a step S201, when the external device such as a portable device or a piece of media such as a flash memory is connected to the PD plug-in section 117 of the information processing apparatus 100, the apparatus 100 detects that the external device or the media has been connected.

[0106]

When the external device or piece of media is found connected, the content transfer processing section 113 acquires information regarding the connected external device from that device through the PD plug-in section 117. The information about the connected external device is displayed via the GUI section 111. In this step, as described above with reference to the flowchart of Fig. 6, the connected external device information such as the one shown in Fig. 7 is displayed. Fig. 7 shows a display example of the connected external device information in effect when an external device ATRAC HDD is connected to the PD plug-in section 117. As shown in Fig. 7, the connected external device information includes HDD use status information 301, initialization information 302, and automatic transfer setting information 303. The HDD here serves as storing means of the external device.

[0107]

In the present embodiment, when the automatic transfer is set in use, the information about the albums containing only non-transferred songs is presented via the GUI section 111. The user may select songs to be transferred by verifying the presented album information. The setting is selected or deselected by inserting or removing a check mark to or from the item indicating "The albums will be confirmed before getting transferred" in the automatic transfer setting information 303. Putting a check mark into this check box allows the user to select the songs to be transferred after confirming the presented album information.

[0108]

In a step S202, the content transfer processing section 113 of the information processing apparatus 100 checks to determine whether or not automatic transfer is set for the external device connected to the PD plug-in section 117. If automatic transfer is not set in place, a step S221 is reached for manual transfer or for some other process.

[0109]

If manual transfer is to be carried out, for example, the transfer processing screen such as the one in Fig. 8 is displayed through the GUI section 111 as described above with reference to the flowchart of Fig. 6. The user selects albums to be transferred illustratively from the album information 354 displayed as part of the My Library information 351. The selected albums are transferred by operating the transfer control buttons 353 in the middle of the screen.

[0110]

Where automatic transfer is set in place, in a step S203, the information processing apparatus 100 acquires from the external device a check-out log (see Fig. 9) including the content IDs (song IDs) of previously transferred contents.

[0111]

The information processing apparatus acquires the check-out log such as the one shown in Fig. 9 or the device ID from the external device in the step S203. Check-out log entries corresponding to the connected external device are then extracted from the check-out logs kept in the information processing apparatus. In a step S204, the content IDs (song IDs) of the songs stored in the song file storage section 123 are acquired from the song management information storage section 122 and compared with the content IDs (song IDs) recorded in the check-out log.

[0112]

In a step S205, the IDs of the songs yet to be transferred to the external device are extracted on the basis of the comparison carried out in the step S204. That is, the IDs, which are included in the content IDs (song IDs) of the songs stored in the song file storage section 123 but which are not included in the content IDs (song IDs) recorded in the check-out log, are extracted.

[0113]

In a step S206, information about the albums containing only the non-transferred songs is extracted based on the non-transferred song IDs extracted in the step S205.

[0114]

In the procedure described above with reference to Fig. 6, the information about the albums each including at least one non-transferred song was extracted on the basis of the non-transferred song IDs. In this embodiment, by contrast, the information about the albums each containing only the non-transferred song or songs is extracted based on the non-transferred song IDs.

[0115]

The album information is extracted by use of the album-by-album management data held in the song management information storage section 122 as explained above with reference to Fig. 3. As illustrated in Fig. 3, the management data in increments of albums has the song IDs established. On the basis of the album-by-album management data shown in Fig. 3(b), the albums that contain only the song IDs corresponding to the IDs extracted as the non-transferred song IDs are selected. The album information including the album names is extracted from the song management information storage section 122.

[0116]

In a step S207, the album information extracted in the step S206 from the song management information storage section 122 regarding the albums each containing only the non-transferred songs is presented through the GUI section 111. The presenting process is, in the information about the connected external device described above with reference to Fig. 7, effected only if the check box indicating "The albums will be confirmed before getting transferred" is selected as part of the automatic transfer setting information 303. If the check box is not selected, then the contents not included in the check-out log of the external device, i.e., non-selected songs, are selected and transferred to the external device automatically.

[0117]

The description that follows is based on the assumption that the setting "The albums will be confirmed before getting transferred" is being selected. In the step S207, through the GUI section 111, the information of the albums containing only the non-transferred songs extracted from the song management information storage section 122 is presented.

[0118]

Fig. 12 shows typical information presented. As illustrated in Fig. 12, the presented information includes an album list 381 indicating albums that contain only non-transferred songs. The user may select albums to be transferred from the album list 381 thus presented.

[0119]

If in a step S208 the user selectively inputs the desired albums through the GUI section 111, a step S209 is reached. In the step S209, song list information, in which the songs contained in the selected albums are set to be checked out, is created. Transfer in accordance with the song list information is then started.

[0120]

According to the configuration of the present embodiment, as described above, a check-out log including transferred content IDs is acquired as the content information already transferred from the information processing apparatus to the connected external device, compares the acquired check-out log with the stored content IDs as the stored content information in the data storage block so as to determine non-transferred contents, and establishes the non-transferred contents thus determined as the contents to be transferred to the external device. The albums each containing only non-transferred contents are selected and established as candidate albums to be transferred. Thus, it is unnecessary for the user to verify and distinguish already transferred contents. This brings about an efficient content transfer process.

[0121]

A typical hardware structure of the information processing apparatus for carrying out the above-described procedures will now be described with reference to Fig. 13.

[0122]

A CPU (Central Processing Unit) 501 is a control unit that performs processes in accordance with various computer programs such as an OS (Operating System), a content recording/reproduction process, a content download process, and a content transfer processing program.

[0123]

A ROM (Read Only Memory) 502 stores the programs and parameters for use by the CPU 501. A RAM (Random Access Memory) 503 accommodates the programs being used in the execution by the CPU 501 as well as the parameters that vary during the execution of the programs. These are interconnected by a host bus 504 illustratively formed by a CPU bus.

[0124]

The host bus 504 is connected to an external bus 506 such as a PCI (Peripheral Component Interconnect/Interface) bus through a bridge 505.

[0125]

A keyboard 508 is operated by the user in inputting commands to the CPU 501. A pointing device 509 is manipulated by the user in pointing to and selecting items on the screen of a display device 510. The display device 510 is constituted illustratively by a liquid crystal display device or a CRT (Cathode Ray Tube) that displays diverse kinds of information in text or in image form. An HDD (Hard Disk Drive) 511 drives a hard disk to record or reproduce programs and information on which the CPU 501 operates.

[0126]

A drive 512 is loaded with a removal recording medium 521 such as a magnetic disk, an optical disk, a magneto-optical disk, or a semiconductor memory. The drive 512 reads data or programs from the loaded medium and supplies to the RAM 503 connected via an interface 507, the external bus 506, bridge 505, and host bus 504.

[0127]

A connection port 514 with its connective arrangements based on the USB, IEEE1394 or other suitable standards is used to connect an externally connected device 522 such as a player. The connection port 514 is connected to the CPU 501 and other component parts through the interface 507, external bus 506, bridge 505, and host bus 504.

[0128]

A communication device 515 connected to a network handles transmission of data supplied from the CPU 501, HDD 511 or the like as well as the reception of data from servers. Illustratively, the communication device 515 conducts communications in acquiring contents and content-related information.

[0129]

While the present invention has been described with reference to specific embodiments, it is evident that modifications and alternatives of the embodiments can be made by those skilled in the art without departing from the scope of the present invention. In other words, the present invention has been disclosed in exemplified forms and should not be interpreted in a limited way. The substance of the present invention should be determined by making allowance for the claims stated at the beginning.

[0130]

The series of processes described in the specification may be executed either by hardware, by software, or by the combination of both. For the software-based processing to take place, the programs constituting relevant processing sequences may be either installed beforehand in a memory of a computer incorporated in dedicated hardware or installed upon use into a general-purpose personal computer capable of executing diverse processes.

[0131]

Illustratively, the programs above may be recorded beforehand on a recording medium such as a hard disk or a ROM (Read Only Memory). Alternatively, the programs may be stored (recorded) temporarily or permanently on such removable recording media as flexible disks, CD-ROMs (Compact Disc Read Only Memories), MO (Magneto optical) disks, DVDs (Digital Versatile Discs), magnetic disks, or semiconductor memories. These removable recording media may be offered as so-called packaged software.

[0132]

Besides being installed from such removable recording media into the computer, the programs may be transferred from appropriate download sites to the computer wirelessly or in wired fashion via a network such as a LAN (Local Area Network) or the Internet. The transferred programs upon receipt are installed onto an internal recording medium of the computer such as a hard disk.

[0133]

The processes described in this specification may not only be carried out in the depicted sequence on a time series basis, but the processes may also be executed parallelly or individually as needed or in keeping with the performance of the apparatus doing the execution. In this specification, a system indicates a logical collective configuration of a plurality of component devices. Each of the devices may or may not be housed in a single enclosure.

[Industrial Applicability]

[0134]

According to the present invention described above, when the contents stored in and managed by the information processing apparatus are to be transferred to an external device, a check-out log including content IDs is acquired as information about the contents already transferred to the external device. The content IDs in the check-out log are compared with the content IDs, which are acquired from the song management information storage section in the information processing apparatus and are stored in the apparatus, whereby non-transferred contents are selected and transferred to the external device. Therefore, it is unnecessary for the user to confirm already transferred contents and select, thus making the transfer of contents more efficient.

[0135]

Furthermore, according to the present invention, even when automatic transfer is set in place, the user is still presented through GUI with either a list of albums including non-transferred songs or a list of albums having only non-transferred songs so that the user may select albums to be transferred. The user’s chores are thus reduced by the automatic selection of non-transferred songs, and the user’s requirements are taken into account in transferring the contents.

[Brief Description of the Drawings]

[0136]

[Fig. 1]

Fig. 1 is a schematic view showing how an information processing apparatus according to the present invention carries out a content data transfer process.

[Fig. 2]

Fig. 2 is an explanatory view showing processing functions of the information processing apparatus according to the invention.

[Fig. 3]

Fig. 3 is a view listing song management information and album management information managed by the information processing apparatus of the invention.

[Fig. 4]

Fig. 4 is a schematic view showing how albums, songs, and song files are related to one another.

[Fig. 5]

Fig. 5 is a schematic view showing how license information and song files are managed by the information processing apparatus of the invention.

[Fig. 6]

Fig. 6 is a flowchart explaining a content transfer sequence performed by the information processing apparatus of the invention.

[Fig. 7]

Fig. 7 is a schematic view showing an example of external device information presented to a user through GUI when an external device is connected to the information processing apparatus of the invention.

[Fig. 8]

Fig. 8 is a schematic view showing a display screen example presented when contents are transferred from the information processing apparatus of the invention to the external device.

[Fig. 9]

Fig. 9 is a view showing an example of data in a check-out log acquired from the external device by the information processing apparatus of the invention.

[Fig. 10]

Fig. 10 is an example of data of information about albums which include non-transferred songs and which are presented to the user through GUI when contents are to be transferred from the information processing apparatus of the invention to the external device.

[Fig. 11]

Fig. 11 is a flowchart explaining a sequence according to a second embodiment of the content transfer performed by the information processing apparatus of the invention.

[Fig. 12]

Fig. 12 is an example of data of information about albums which have non-transferred songs and which are presented to the user through GUI when contents are to be transferred from the information processing apparatus of the invention to the external device.

[Fig. 13]

Fig. 13 is a diagram showing a hardware structure example of the information processing apparatus of the invention.

[Description of Reference Numerals]

[0137]

100 Information processing apparatus

120 Data storage block

130 Portable device

151, 152 Content server

110 Data processing block

111 GUI (Graphical User Interface) section

112 Content management processing section

113 Content transfer processing section

114 Song management section

115 File search section

116 PC (Protected Content) plug-in section

117 PD (Portable Device) plug-in section

118 Communication section 118

119 Drive

121 License information storage section

122 Song management information storage section

123 Song file storage section

124 Additional information storage section

131 Speaker

132 Information recording medium

201 License information

301 HDD use status information

302 Initialization information

303	Automatic transfer setting information
351	My Library information
352	External device information
353	Transfer control button
354	Album information
371	Album list
381	Album list
501	CPU (Central processing Unit)
502	ROM (Read-Only-Memory)
503	RAM (Random Access Memory)
504	Host bus
505	Bridge
506	External bus
507	Interface
508	Keyboard
509	Pointing device
510	Display device
511	HDD (Hard Disk Drive)
512	Drive
514	Connection port
515	Communication device
521	Removal recording medium
522	Externally connected device

[Name Document] Abstract

[Abstract]

[Object]

To provide an information processing apparatus and an information processing method to carry out an efficient content transfer process.

[Solving Means]

When the contents stored in and managed by the information processing apparatus are to be transferred to an external device, a check-out log including the content IDs is acquired as the contents already transferred to the external device. The content IDs in the check-out log are compared with the content IDs which are acquired from a song management information storage section in the information processing apparatus and are stored in the apparatus, whereby non-transferred songs are selected and transferred to the external device. The present configuration eliminates the need for the user to confirm already transferred contents and to select the contents, thus making the transfer of contents more efficient.

[Selected Drawing] Fig. 6

[Name of Document] Drawings

[Fig. 1]

100: Information processing apparatus (PC)

151, 152: Content server (EMD server)

1-1: Network

[Fig. 2]

100: Information processing apparatus (PC)

110: Data processing block

112: Content management processing section (for processing downloading and file acquisition)

113: Content transfer processing section

114: Song management section

115: File search section

116: PC plug-in section

117: PD plug-in section

118: Communication section

119: Drive

120: Data storage block

121: License information storage section

122: Song management information storage section

123: Song file storage section

124: Additional information storage section

130: External device

131: Speakers

151, 152: Content server

1-1: Network

[Fig. 3]

3-1: Song name

3-2: Song file name

3-3: Album name

3-4: IDs of songs in the album

[Fig. 4]

4-1: Albums

4-2: Album A

4-3: Album B

4-4: Album C

4-5: Songs

4-6: Song A-1

4-7: Song A-2

4-8: Song A-3

4-9: Song B-1

4-10: Song B-2

4-11: Song C-1

4-12: Files

[Fig. 5]

123: Song file storage section

5-1: Music data

121: License information storage section

201: License information (license repository)

5-2: License information

5-3: License information

- Content ID
- Remaining reproduction count
- Remaining allowable check-out count
- Reproduction starting date and time
- Reproduction ending date and time

[Fig. 6]

6-1: Start

S101: Detect external device or media connected

S102: Automatic transfer set in place?

S121: Perform manual transfer or other process

S103: Acquire check-out log from external device through PD plug-in section

S104: From song management information storage section, acquire content IDs (song IDs) of songs held in song file storage section and compare acquired ids with content IDs (song IDs) in check-out log obtained from external device

S105: Based on result of comparison, extract IDs of songs yet to be transferred to external device

S106: Based on IDs of non-transferred songs, extract information about albums including these songs

S107: Through GUI, present user with information about extracted albums

S108: Albums selected?

S109: Create song list information in which songs held in selected albums are set to be checked out, and start transferring set songs

6-2: End

[Fig. 7]

7-1: ATRAC HDD device information

7-2: HDD use status

7-3: Total capacity

7-4: Used capacity

7-5: Unused capacity

7-6: Initialization

7-7: The ATRAC HDD will be initialized.
All contents will be deleted.

7-8: Initialize (I)

7-9: Automatic transfer

7-10: Automatic transfer will be made every time the ATRAC HDD is connected (A)

7-11: The albums will be confirmed before getting transferred (C)

7-12: Deselecting the check box will let the non-transferred albums start getting transferred without confirmation when connection is established.

7-13: Cancel

7-14: Help (H)

[Fig. 8]

8-1: File (F)

8-2: Edit (E)

8-3: View (V)

8-4: Commands (C)

8-5: Tools (T)

8-6: Help (H)

8-7: Record CDs

8-8: Acquire music

8-9: My library

8-10: Transfer music

8-11: Unused capacity

8-12: Voices

8-13: Imagine

8-14: Display mode

8-15: Album list

8-16: Return to album list

8-17: Titles

8-18: Love dance

8-19: Index

8-20: Transfer

8-21: Normal transfer

8-22: Set details

8-23: Audio album name

8-24: Transfer status

8-25: Device/media information

[Fig. 9]

9-1: Name of externally connected device

9-2: Media ID

9-3: Transferred song log information (list of IDs of transferred songs)

[Fig. 10]

10-1: Set automatic transfer

10-2: The albums including non-transferred songs will start getting transferred.

10-3: Select all

10-4: Deselect all

10-5: (The albums including non-transferred songs will be displayed.)

7-10: Automatic transfer will be made every time the ATRAC HDD is connected (A)

7-11: The albums will be confirmed before getting transferred (C)

7-12: Deselecting the check box will let the non-transferred albums start getting transferred without confirmation when connection is established.

7-13: Cancel

7-14: Help (H)

[Fig. 11]

6-1: Start

S201: Detect external device or media connected

S202: Automatic transfer set in place?

S221: Perform manual transfer or other process

S203: Acquire check-out log from external device through PD plug-in section

S204: From song management information storage section, acquire content IDs (song IDs) of songs held in song file storage section and compare acquired ids with content IDs (song IDs) in check-out log obtained from external device

S205: Based on result of comparison, extract IDs of songs yet to be transferred to external device

S206: Based on IDs of non-transferred songs, extract information about albums including only these songs

S207: Through GUI, present user with information about extracted albums

S208: Albums selected?

S209: Create song list information in which songs held in selected albums are set to be checked out, and start transferring set songs

6-2: End

[Fig. 12]

10-1: Set automatic transfer

12-1: The albums including non-transferred songs only will start getting transferred.

10-3: Select all

10-4: Deselect all

12-2: (The albums including non-transferred songs only will be displayed.)

7-10: Automatic transfer will be made every time the ATRAC HDD is connected (A)

7-11: The albums will be confirmed before getting transferred (C)

7-12: Deselecting the check box will let the non-transferred albums start getting transferred without confirmation when connection is established.

7-13: Cancel

7-14: Help (H)

[Fig. 13]

505: Bridge

507: Interface

508: Keyboard

509: Pointing device

510: Display device

512: Drive

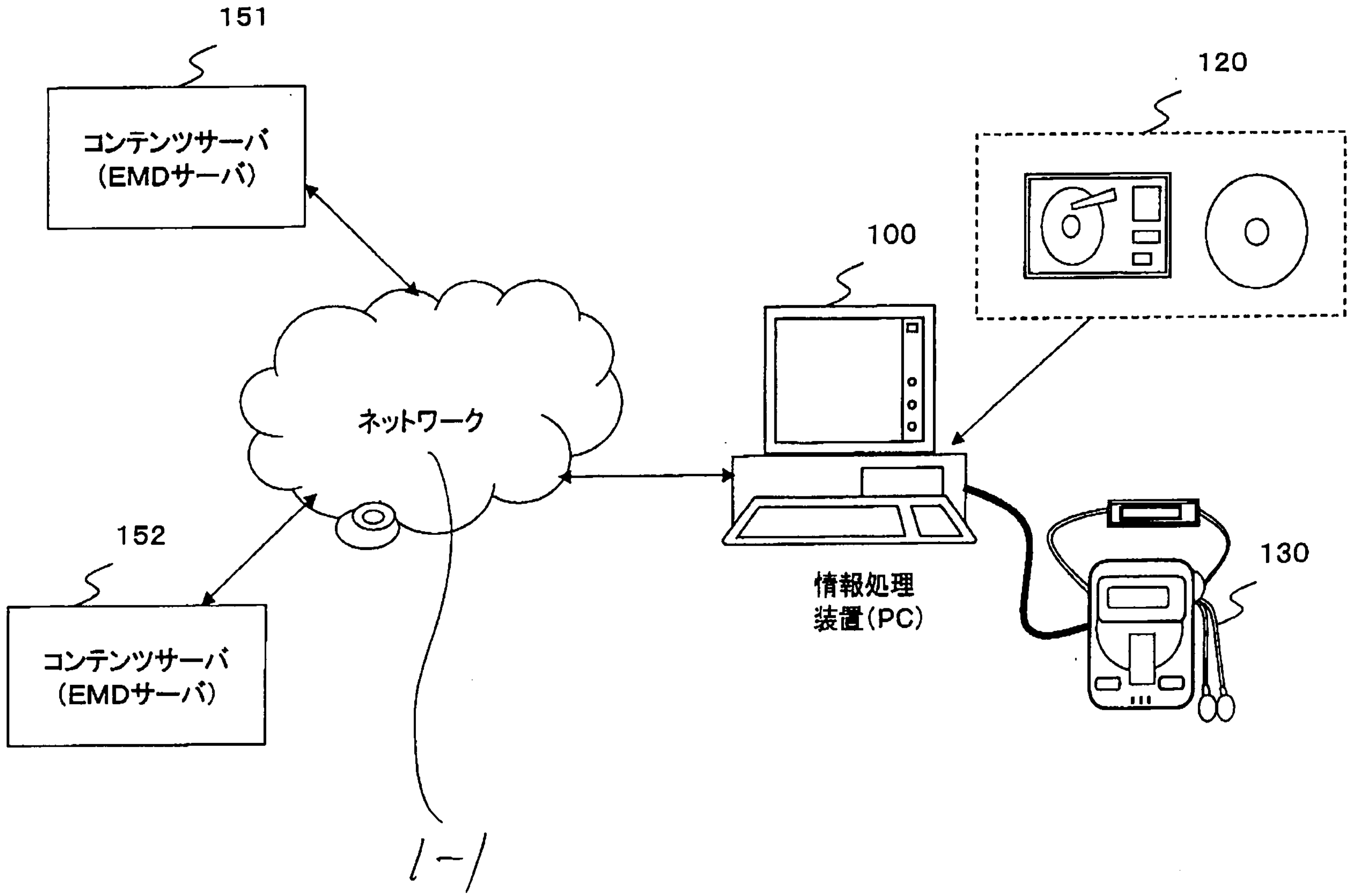
514: Connection port (USB, etc.)

515: Communication device

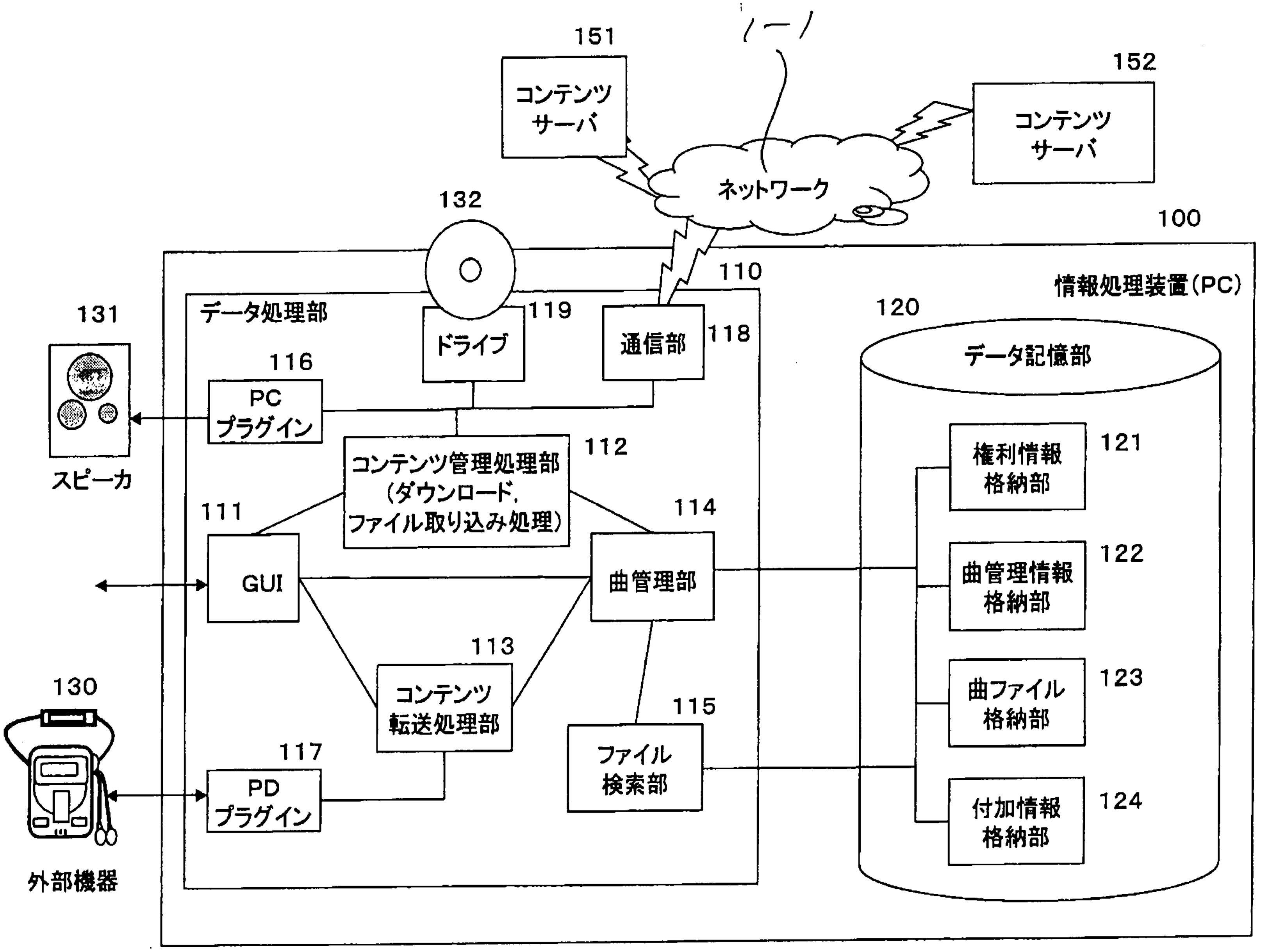
521: Removable recording medium

522: Externally connected device (player, etc.)

【書類名】図面
【図1】


151
コンテンツサーバ
(EMDサーバ)
152
コンテンツサーバ
(EMDサーバ)
ネットワーク
1-1
100
120
130
情報処理
装置(PC)

【図２】


151
コンテンツ
サーバ
152
コンテンツ
サーバ
ネットワーク
132
100
110
情報処理装置(PC)
データ処理部
119
ドライブ
通信部
118
120
データ記憶部
131
116
PC
プラグイン
スピーカ
コンテンツ管理処理部
(ダウンロード,
ファイル取り込み処理)
112
111
GUI
114
曲管理部
121
権利情報
格納部
122
曲管理情報
格納部
113
コンテンツ
転送処理部
123
曲ファイル
格納部
130
115
ファイル
検索部
117
PD
プラグイン
124
付加情報
格納部
外部機器

【図３】

3-1　3-2

(a)

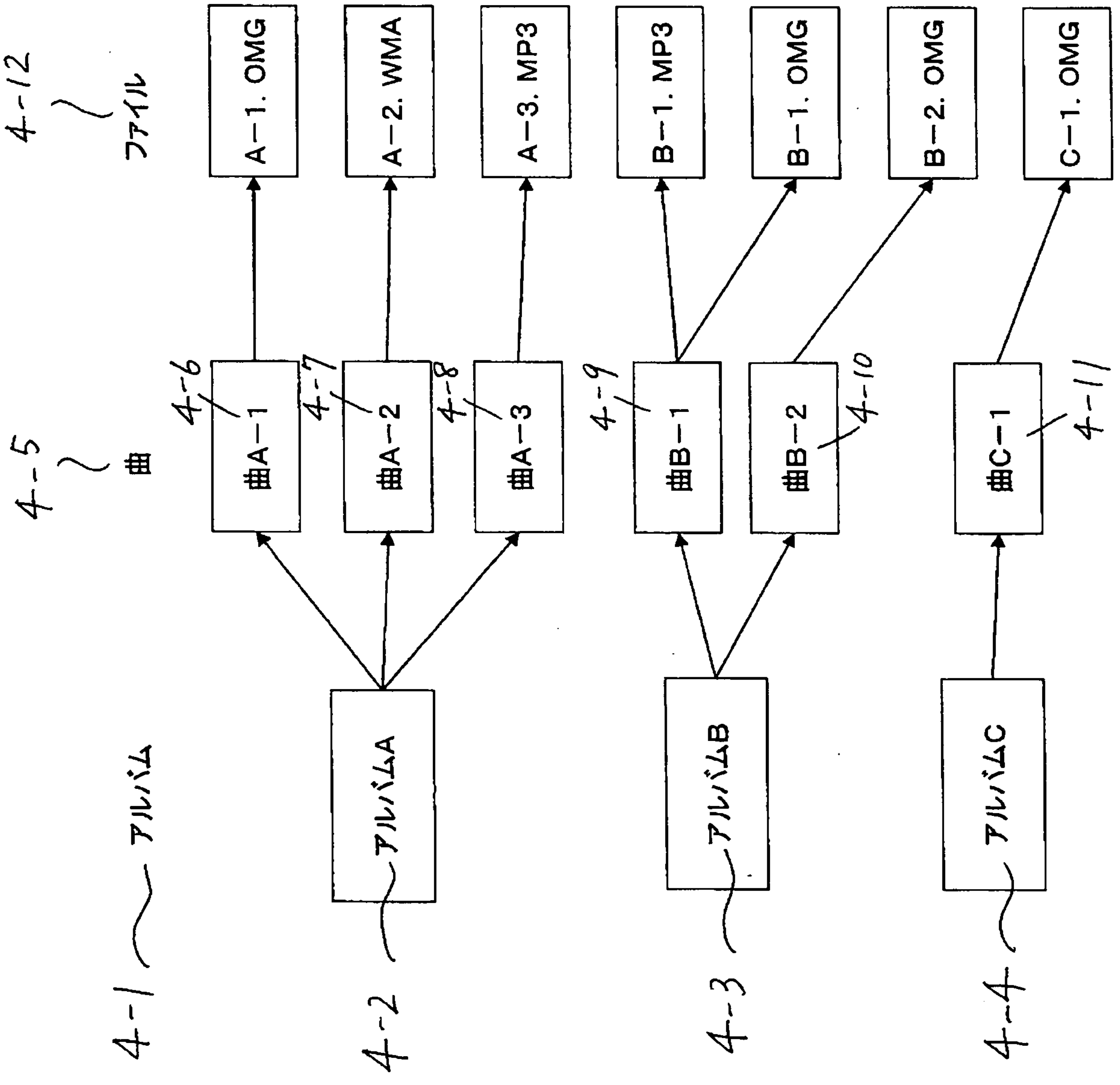
ID	曲名	曲ファイル名
1	Song-A	C:¥Root¥Song-A¥track.omg
2	Song-B	C:¥Root¥Song-B¥track.omg
3	Song-C	C:¥Root¥Song-B¥track.omg

3-3　3-4

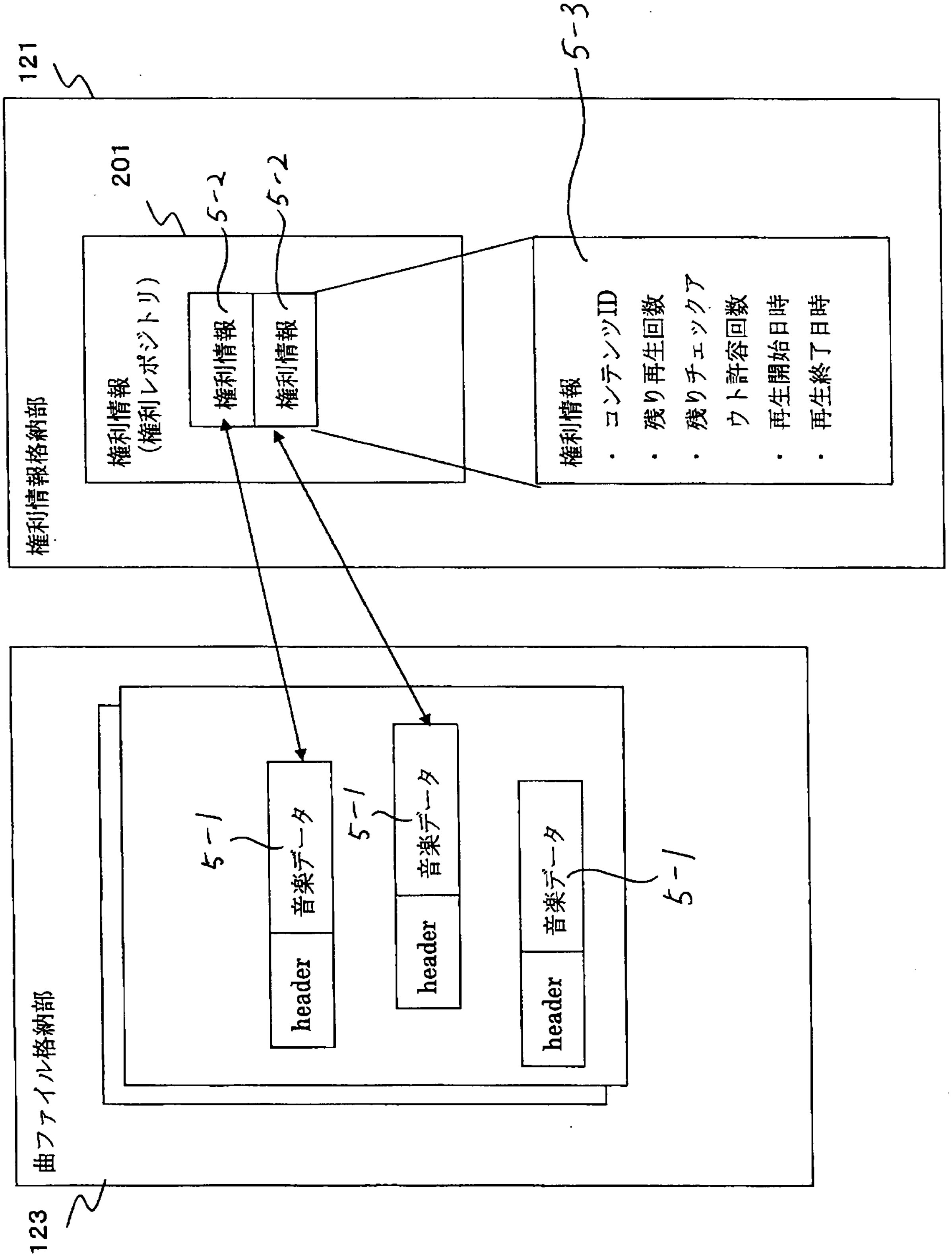
(b)

ID	アルバム名	アルバムに含まれる曲ID
100	Album-A	1, 2, 5, …
101	Album-B	1, 3, 4, …

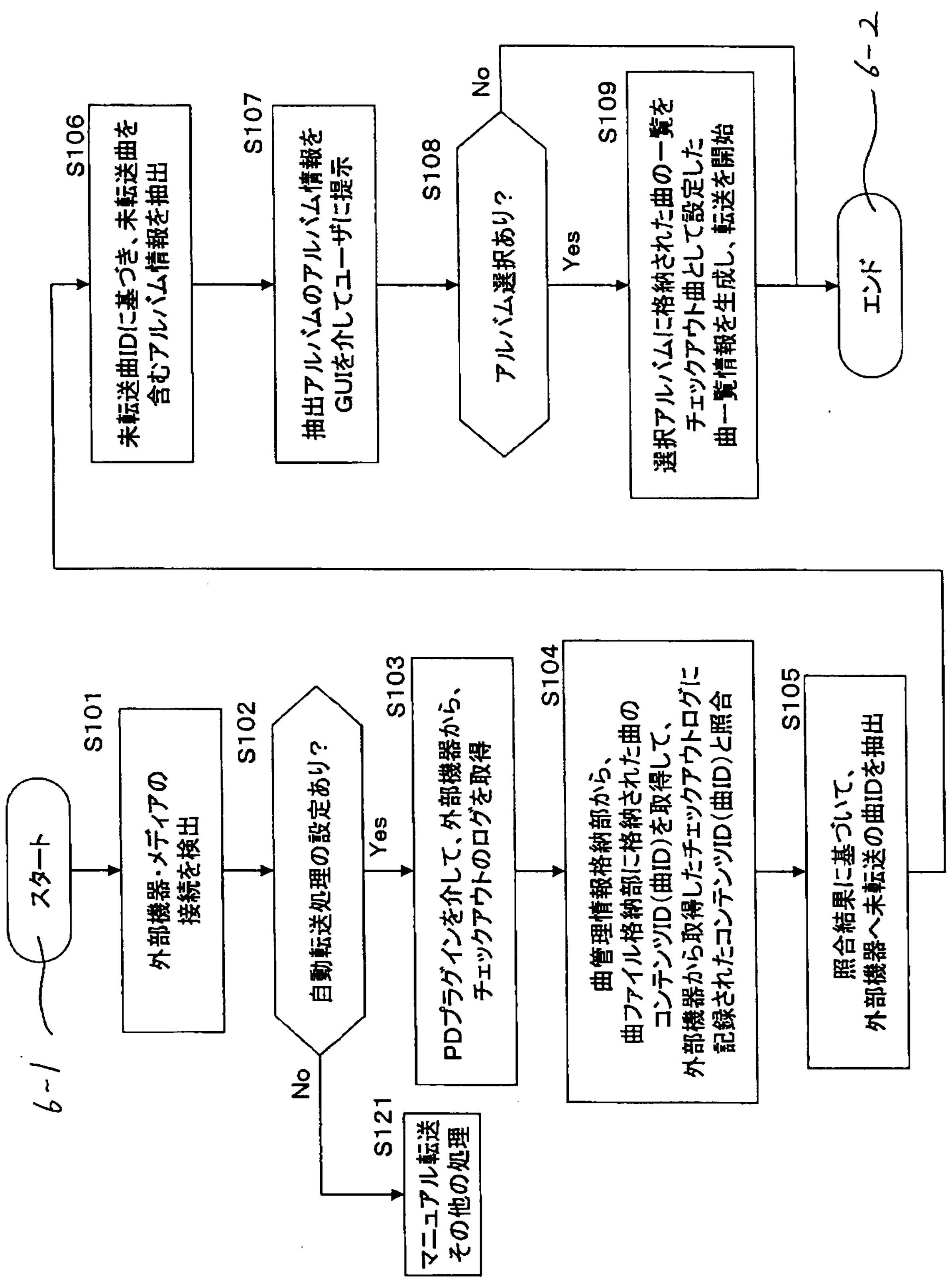
【図４】


4-1
アルバム
4-5
曲
4-12
ファイル
4-2
アルバムA
4-3
アルバムB
4-4
アルバムC
4-6
曲A−1
4-7
曲A−2
4-8
曲A−3
4-9
曲B−1
4-10
曲B−2
4-11
曲C−1
A−1. OMG
A−2. WMA
A−3. MP3
B−1. MP3
B−1. OMG
B−2. OMG
C−1. OMG

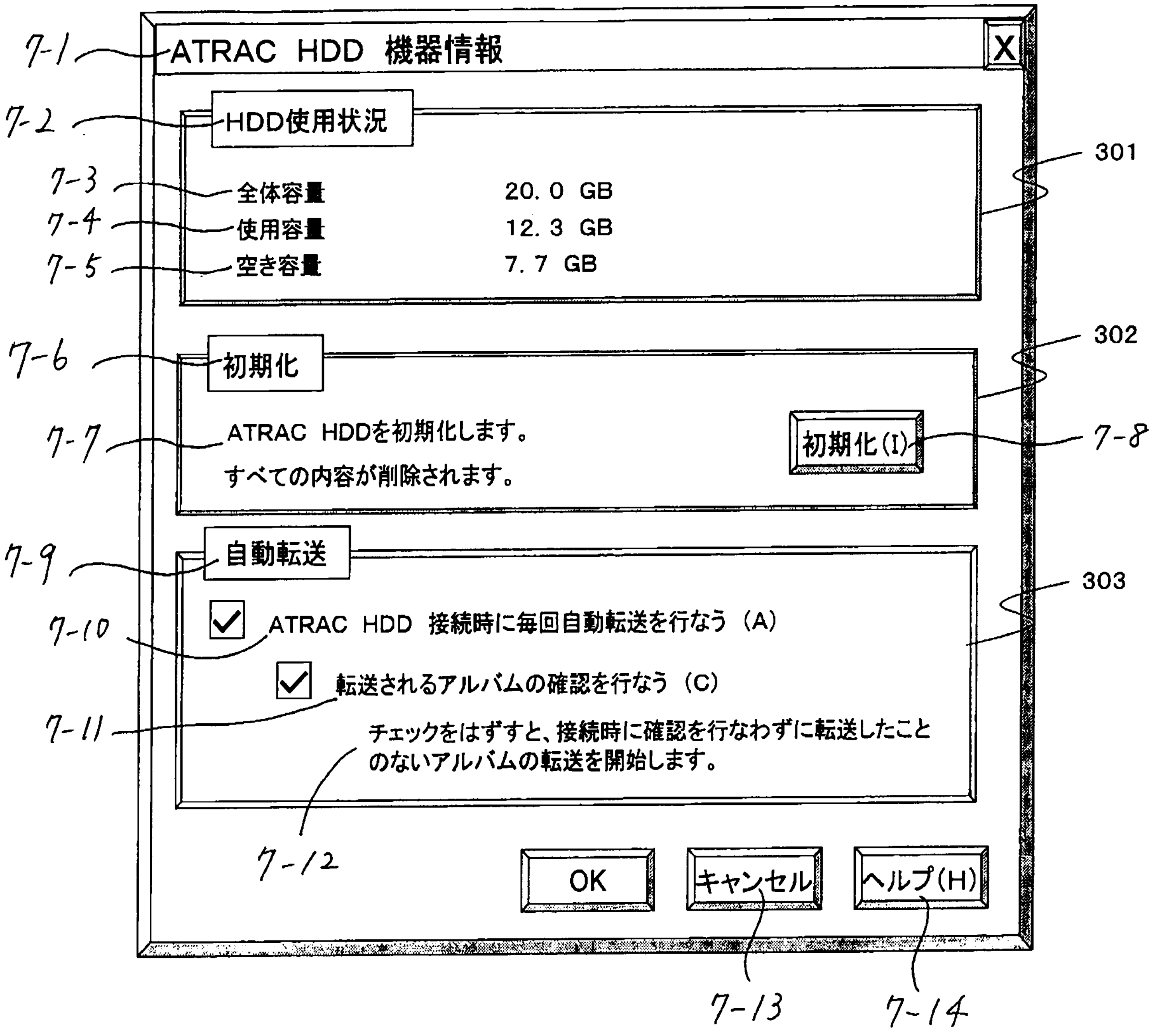
【図５】


121
権利情報格納部
201
権利情報
（権利レポジトリ）
5-2
5-2
権利情報
権利情報
5-3
権利情報
・コンテンツID
・残り再生回数
・残りチェックアウト許容回数
・再生開始日時
・再生終了日時
曲ファイル格納部
123
header
音楽データ
5-1
header
音楽データ
5-1
header
音楽データ
5-1

【図６】


スタート
S101
外部機器・メディアの接続を検出
S102
自動転送処理の設定あり？
Yes
No
S121
マニュアル転送その他の処理
S103
PDプラグインを介して、外部機器から、チェックアウトのログを取得
S104
曲管理情報格納部から、曲ファイル格納部に格納された曲のコンテンツID（曲ID）を取得して、外部機器から取得したチェックアウトログに記録されたコンテンツID（曲ID）と照合
S105
照合結果に基づいて、外部機器へ未転送の曲IDを抽出
S106
未転送曲IDに基づき、未転送曲を含むアルバム情報を抽出
S107
抽出アルバムのアルバム情報をGUIを介してユーザに提示
S108
アルバム選択あり？
Yes
No
S109
選択アルバムに格納された曲の一覧をチェックアウト曲として設定した曲一覧情報を生成し、転送を開始
エンド
6-1
6-2

【図7】



ATRAC HDD 機器情報

HDD使用状況

全体容量	20.0 GB
使用容量	12.3 GB
空き容量	7.7 GB

初期化

ATRAC HDDを初期化します。
すべての内容が削除されます。

自動転送

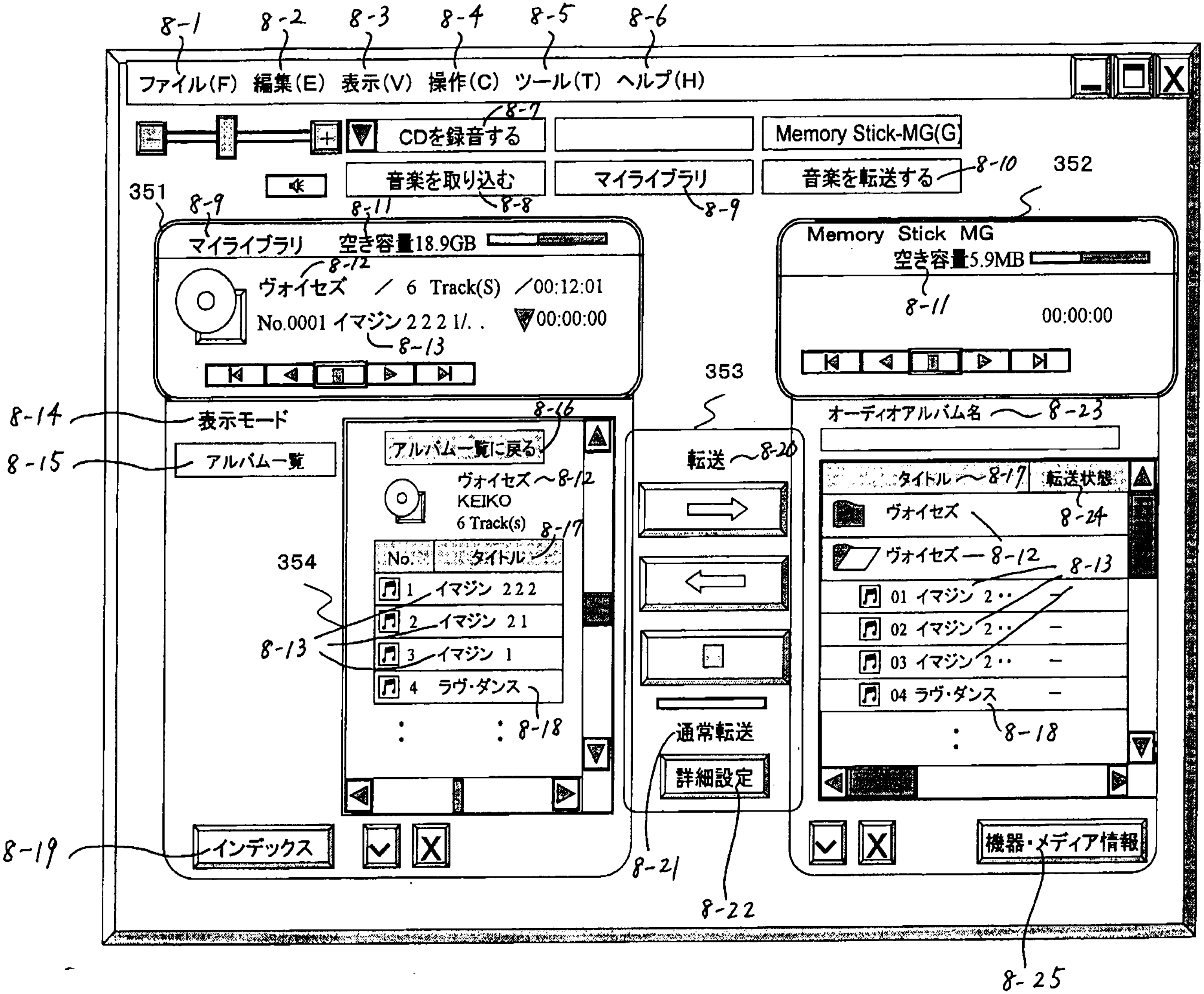
☑ ATRAC HDD 接続時に毎回自動転送を行なう（A）

☑ 転送されるアルバムの確認を行なう（C）

チェックをはずすと、接続時に確認を行なわずに転送したことのないアルバムの転送を開始します。

X
初期化(I)
OK
キャンセル
ヘルプ(H)
7-1
7-2
7-3
7-4
7-5
7-6
7-7
7-8
7-9
7-10
7-11
7-12
7-13
7-14
301
302
303

【図８】



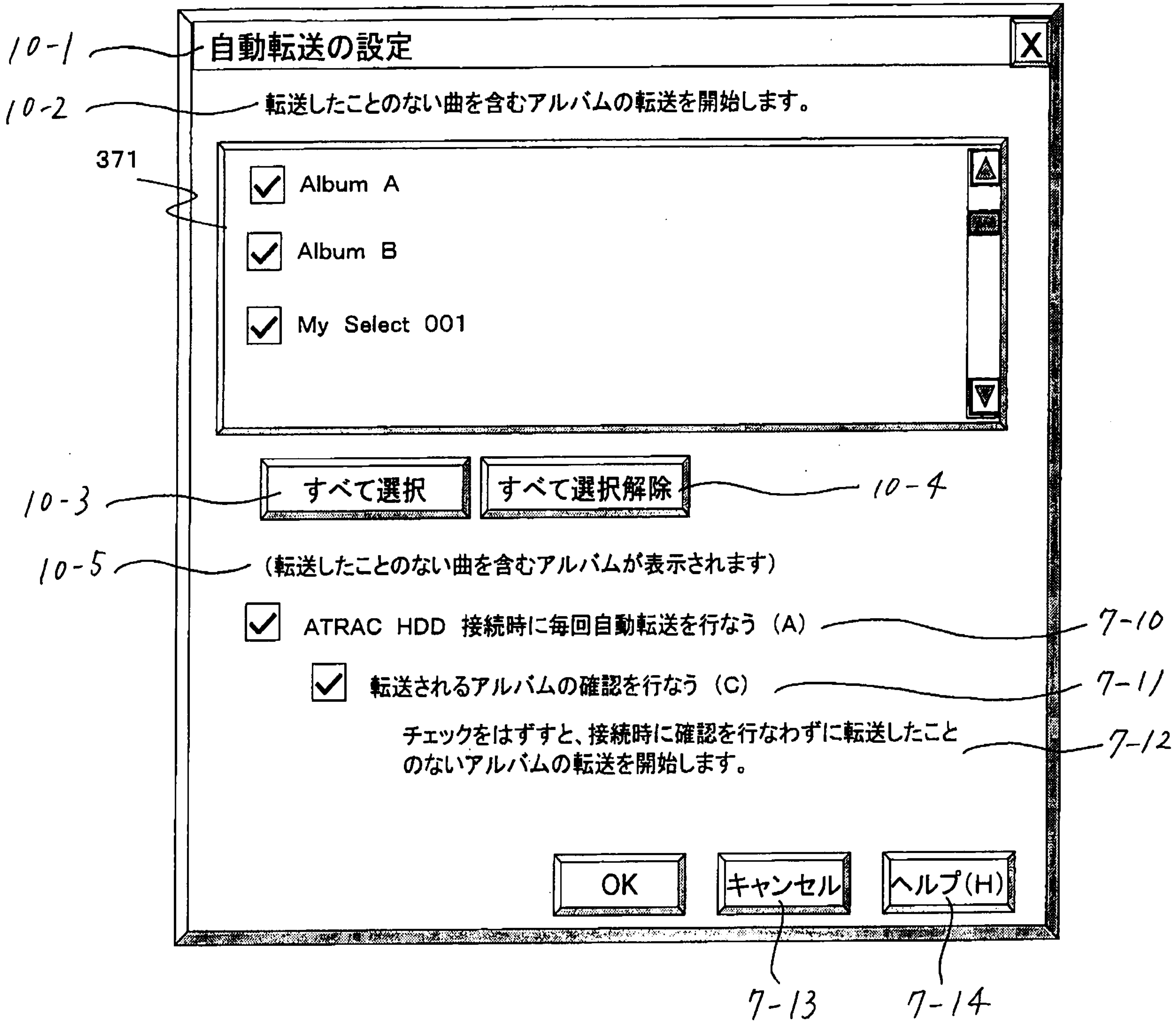
8-1
8-2
8-3
8-4
8-5
8-6
ファイル(F)
編集(E)
表示(V)
操作(C)
ツール(T)
ヘルプ(H)
8-7
CDを録音する
Memory Stick-MG(G)
音楽を取り込む
8-8
マイライブラリ
8-9
音楽を転送する
8-10
352
351
8-9
マイライブラリ
8-11
空き容量18.9GB
8-12
ヴォイセズ
／ 6 Track(S)
／00:12:01
No.0001 イマジン 2 2 2 1/. .
8-13
00:00:00
Memory Stick MG
空き容量5.9MB
8-11
00:00:00
353
8-14
表示モード
8-15
アルバム一覧
8-16
アルバム一覧に戻る
ヴォイセズ～8-12
KEIKO
6 Track(s)
8-17
No.
タイトル
354
1 イマジン 2 2 2
2 イマジン 2 1
3 イマジン 1
4 ラヴ・ダンス
8-13
8-18
転送～8-20
通常転送
詳細設定
8-21
8-22
オーディオアルバム名～8-23
タイトル～8-17
転送状態
8-24
ヴォイセズ
ヴォイセズ－8-12
8-13
01 イマジン 2‥ －
02 イマジン 2‥ －
03 イマジン 2‥ －
04 ラヴ・ダンス －
8-18
8-19
インデックス
機器・メディア情報
8-25

【図９】

9-1 9-2 9-3

接続外部機器名	メディアID	転送曲ログ情報（転送済み曲IDリスト）
ATRAC HDD	0101A3460201 22････123562	1, 2, 5, 7, 9, 11, 12, 14, 16, 21, 22･･･ ･･･22, 24, 25, 2, 8, 31, 33, 34, 35･･･,

【図１０】



自動転送の設定

転送したことのない曲を含むアルバムの転送を開始します。

☑ Album A
☑ Album B
☑ My Select 001

（転送したことのない曲を含むアルバムが表示されます）

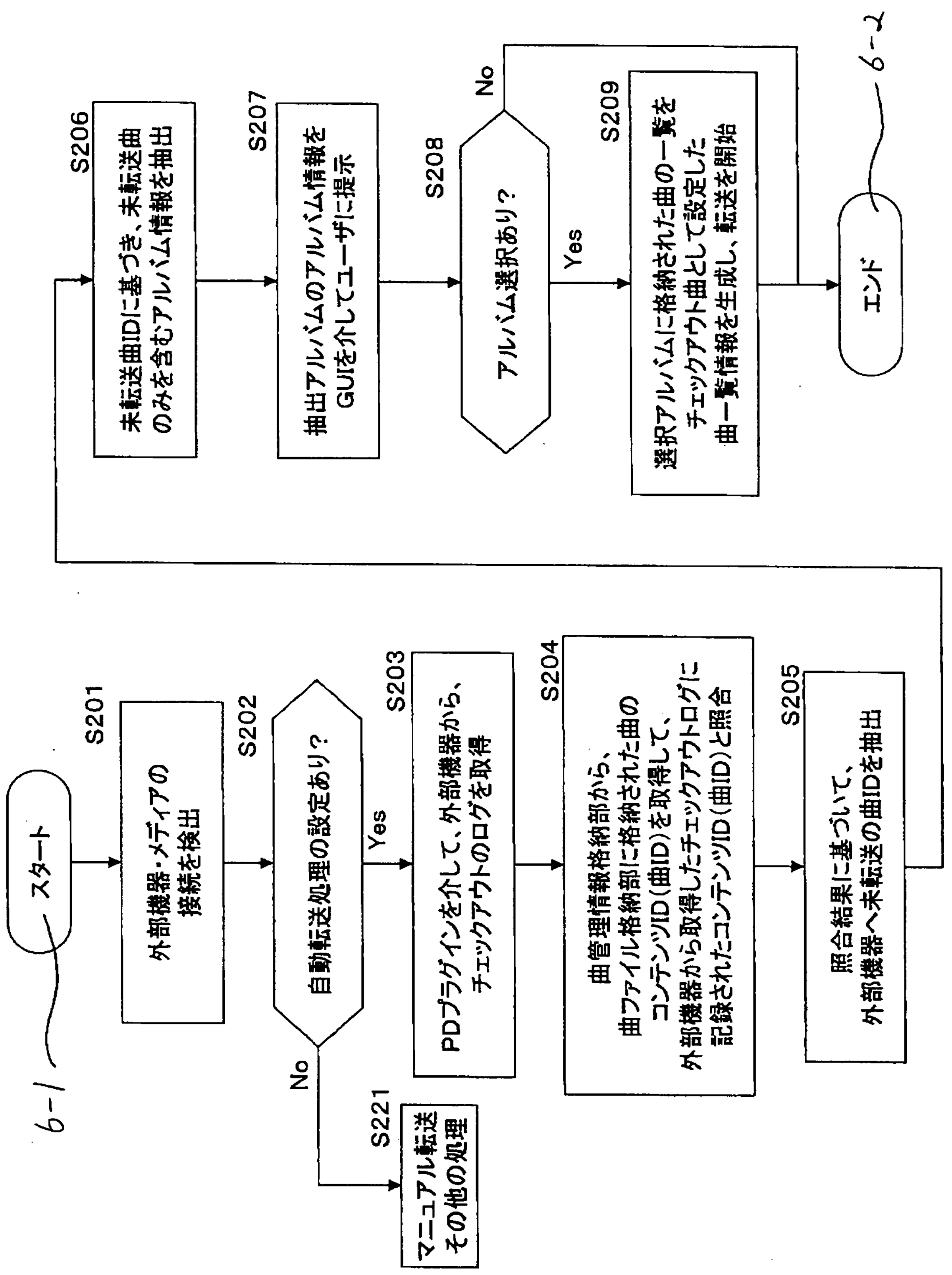
☑ ATRAC HDD 接続時に毎回自動転送を行なう（A）

☑ 転送されるアルバムの確認を行なう（C）

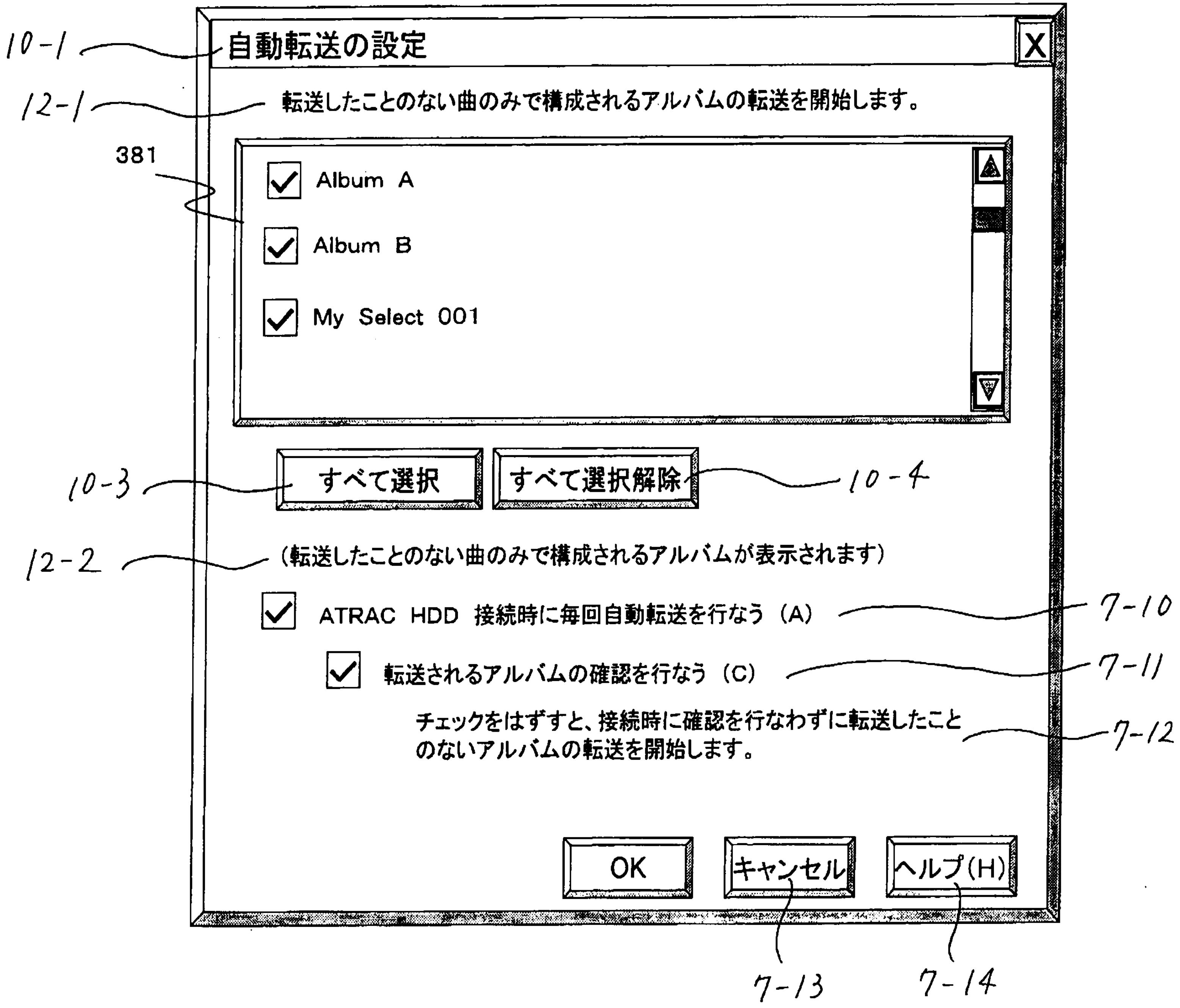
チェックをはずすと、接続時に確認を行なわずに転送したことのないアルバムの転送を開始します。

10-1
10-2
371
X
すべて選択
すべて選択解除
10-3
10-4
10-5
7-10
7-11
7-12
OK
キャンセル
ヘルプ(H)
7-13
7-14

【図１１】


スタート
S201
外部機器・メディアの接続を検出
S202
自動転送処理の設定あり？
Yes
No
S203
PDプラグインを介して、外部機器から、チェックアウトのログを取得
S204
曲管理情報格納部から、曲ファイル格納部に格納された曲のコンテンツID（曲ID）を取得して、外部機器から取得したチェックアウトログに記録されたコンテンツID（曲ID）と照合
S205
照合結果に基づいて、外部機器へ未転送の曲IDを抽出
S221
マニュアル転送その他の処理
S206
未転送曲IDに基づき、未転送曲のみを含むアルバム情報を抽出
S207
抽出アルバムのアルバム情報をGUIを介してユーザに提示
S208
アルバム選択あり？
Yes
No
S209
選択アルバムに格納された曲の一覧をチェックアウト曲として設定した曲一覧情報を生成し、転送を開始
エンド
6-1
6-2

【図１２】



自動転送の設定

転送したことのない曲のみで構成されるアルバムの転送を開始します。

☑ Album A
☑ Album B
☑ My Select 001

（転送したことのない曲のみで構成されるアルバムが表示されます）

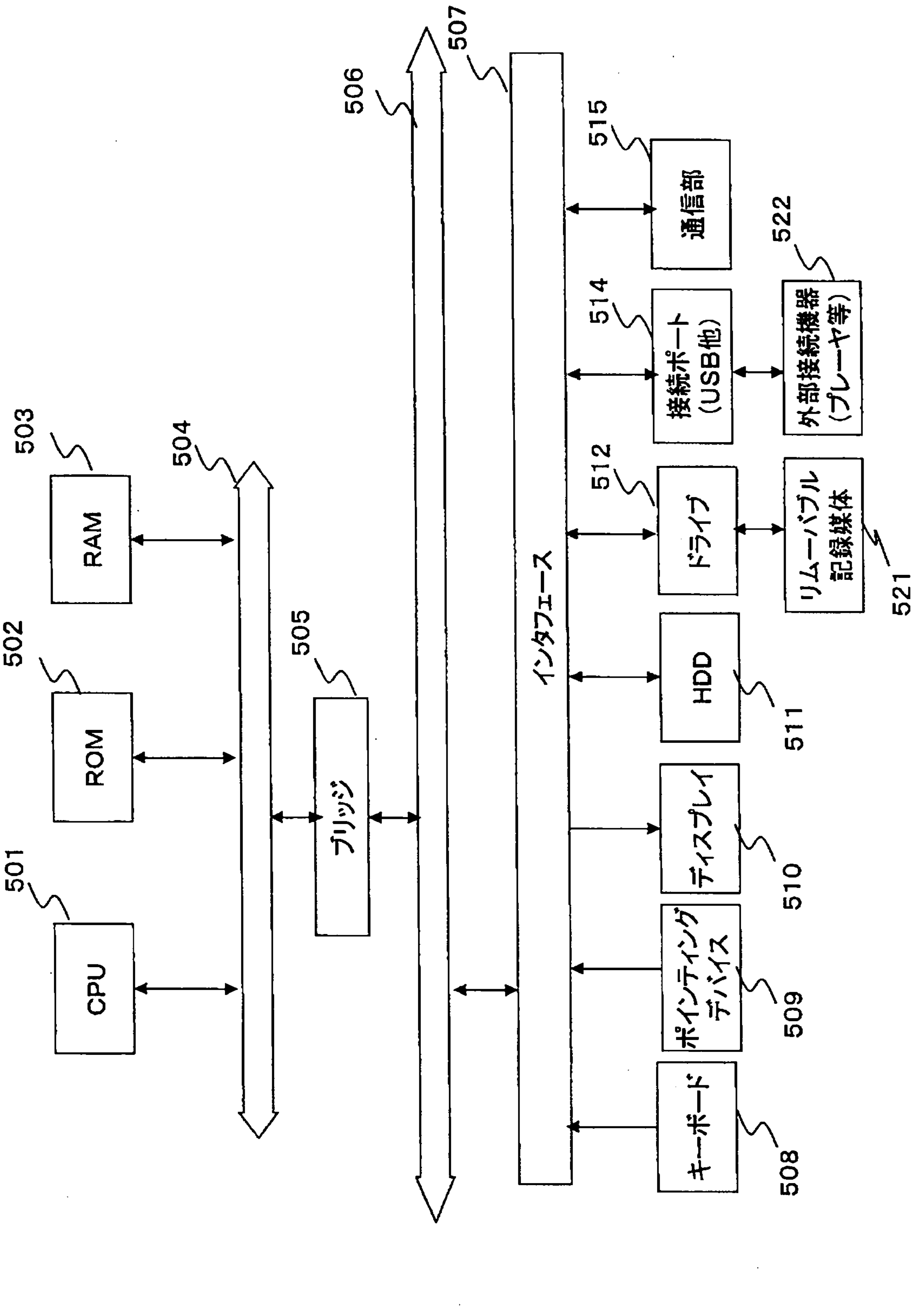
☑ ATRAC HDD 接続時に毎回自動転送を行なう（A）

☑ 転送されるアルバムの確認を行なう（C）

チェックをはずすと、接続時に確認を行なわずに転送したことのないアルバムの転送を開始します。

X
すべて選択
すべて選択解除
OK
キャンセル
ヘルプ(H)
10-1
12-1
381
10-3
10-4
12-2
7-10
7-11
7-12
7-13
7-14

【図１３】



501
CPU
502
ROM
503
RAM
504
505
ブリッジ
506
507
インタフェース
508
キーボード
509
ポインティング
デバイス
510
ディスプレイ
511
HDD
512
ドライブ
521
リムーバブル
記録媒体
514
接続ポート
（USB他）
522
外部接続機器
（プレーヤ等）
515
通信部